Open Air Burning Ordinance
The City Of Lynchburg
Work session
1-24-06

Wendy Harper
8108 Timberlake Rd #101
Lynchburg , VA. 24502
239-2111

Open Air Burning Ordinance
The City Of Lynchburg
Work session
1-24-06

I am sorry that I can not be at today's work session. If you would like to talk to me more than you can either call me at the number on the front sheet or email me at wendy 24502 @ people pc.com.
I am not feeling very well due to the recent weather and am worried about encountering something that may cause my a problem.
Thank you again for your time and please take every thing into consideration before you vote.
Wendy Harper

Since the 1980's The City Of Lynchburg has had an Open Air Burning Ordinance . This ordinance needs to be changed because Backyard Burning is not only a health hazard to all citizens but it also causes environmental changes and problems. In the following information I will show what types of Gases are produced from Backyard Burning, the Environmental effects, and Health Hazards associated with backyard Burning.

When you burn leaves the smoke that it puts releases fine particles that contain Carbon Monoxide, Nitrogen Oxide, Sulfur Dioxide, Organic Matter and other Gases that are harmful to your health and the environment. The following will explain what each type of gas produces and it's effect on your health and the environment.
Carbon Monoxide reduces the delivery of oxygen to the body's organs and tissues. This may cause serious repercussion for people who suffer from cardiovascular disease (Stern, Siegrid Burning Leaves pose several Health Hazards , The Oakland Pres (11-23-96) http://home.att.net/~Tillandsias/Health-hazards.htm).

Nitrogen Oxide is a pollutant that causes increased respiratory illness in children. For Asthmatics it can cause breathing difficulty. It can also irate the Lungs and lower resistance to respiratory infections. It is a major pollutant that causes smog and acid rain (Stern, Siegrid Burning Leaves pose several Health Hazards , The Oakland Pres (11-23-96) http://home.att.net/~Tillandsias/Health-hazards.htm).

Sulfur Dioxide causes that acidification of lakes and streams, causes corrosion , visibility impairment , and can produce foliar damage to trees and crops. High concentration affects breathing and cause respiratory problems alternations in the Lungs defenses and may aggravate existing cardiovascular problems (Stern, Siegrid Burning Leaves pose several Health Hazards , The Oakland Pres (11-23-96) http://home.att.net/~Tillandsias/Health-hazards.htm).

Organic Matter is made up of hydrocarbons; which are PAH and PHN. Both are naturally formed in tree leaves and have benzene related compound in them. These are released during burning. Among the PHN's is Benzopyrene, a known carcinogen (Stern, Siegrid Burning Leaves pose several Health Hazards , The Oakland Pres (11-23-96) http://home.att.net/~Tillandsias/Health-hazards.htm).Benz(a)pyrene is know to cause cancer in animals and is believed to be a factor in lung cancer caused by smoke present in leaf smoke (www.iowadnr.com/air/citzen/burn/leafsmoke.html).There are some other hazardous pollutants that comes from the smoke from burn barrels such as lead , mercury, and hexachlorobenzene (EPA The Hidden Hazardous from backyard burning (8-03)). There is Ash residue that also comes from backyard burning that can contain toxic pollutants , such as mercury, lead, chromium, and arsenic, which can contaminate vegetables if scattered in gardens (EPA The Hidden Hazardous of backyard burning (8-03)). Backyard Burning can cause dioxides to enter into the food chain and intern cause humans to consume them in meats, fish, dairy , or water. These food can contain harmful chemicals that can be poisonous to any one that consumes them.

The effects of Backyard Burning on the environment is very significant. Smoke from

backyard burning contributes to smog , higher levels of air pollution, reduce visibility, safety hazards, soil building , and other property damage and create additional demands on local police and fire departments (The Health Hazards of Burning Leaves (10-18-05) www.dnr.state.wi.us/org/aw/air/hot/leaves.html). Backyard Burning also contributes to climate changes because of the production of "Greenhouse gases". "Greenhouse gases" are CO2, Methan(CH4), N2O, and CFC's all of which are found in the smoke from backyard burning (Climate Change Waikato Regional Council (1-13-06) www.ew.govt.nz/enviroinfo/hazards/naturalhazards/weather/climate.htm). " Green house gases" have been accumulating over the last 20 years, due to increased growth in human and industrial activities. The temperature of the Earth is increasing ("global warming") which affects weather patterns world wide (Climate Change Waikato Regional Council (1-13-06) www.ew.govt.nz/enviroinfo/hazards/naturalhazards/weather/climate.htm). We have seen changes in our weather pattern here in Lynchburg in the last couple of years also. We have had hotter winter and hotter summer , drought problems , and sever storms. Global Warming dose not just affect us in the abstract but it also affects us here at home also.

The Health problems associated with backyard burning comes from fine particles that are released in the smoke from the burning leaves.These particles are fine particles (less then 2.5 micrometer) roughly the thickness of a human cell (www.iowadnr.com/air/citzen/burn/leafsmoke.html.).These fine particles can easily reach the deepest recess of the Lungs (EPA Fact Sheet(7-17-97) http://home.att.net/~Tillandsias/Particulate-Matter.htm). The significant health problems from exposure to gases are Premature Death, Respiratory related hospital admissions and ER visits, Aggravated Asthma , Acute Respiratory symptoms- including aggravated cough and difficult or painful breathing, Chronic Bronchitis , Decreases Lung Function with shortness of breath, and Work or school absences. The types of people most likely at risk from exposure to gases are the Elderly, Individuals with Preexisting Heart or Lung disease, Children, Asthmatics, and Asthmatic children (EPA Fact Sheet(7-17-97) http://home.att.net/~Tillandsias/Particulate-Matter.htm). When you are exposed to the smoke from backyard burning you may not fell the affects for several days (The Health Hazards of Burning Leaves (10-18-05) www.dnr.state.wi.us/org/aw/air/hot/leaves.html). 85 % of the particles from burning leaves travel deeply in the Lungs, placing and unnecessary burden on the respiratory system (American Lung Association of Iowa Bag'em-- Don't burn'em(1999)). Not only chemical pollutions are released from leaf burning ; mold spores are also distributed into the smoke (American Lung Association of Iowa Bag'em-- Don't burn'em(1999)). Mold is a very common allergy for a lot of people and can cause symptoms from headaches to respiratory distress.

After looking at what backyard burning produces and how harmful it is on the environment and our health. I am asking you to re-look at the Open Air Burning Ordinance for Lynchburg. I would like it if you would totally outlaw backyard burning but I know that is probably unrealistic. If you could please impose some of the restrictions that other cities in Virginia like Prince William, Rockingham, and Henrico county have done that would be a step in the right direction. I have included in the packet that you

have the Burning regulations for those three counties. Please Take a look at them and impose those restrictions or some restrictions that are more restrictive on burning. I think if you do change the ordinance that there has to be a cause and affect from the new law. Such as if you are going to charge a fine for burning say with out a permit people will probably think twice about burning. I think the City of Lynchburg need to promote other forms of burning that is outlined in the American Lung Association of Iowa "Bag' Em-- Don't Burn 'Em" Page 7 in the packet you have. The VA DEQ is also proposing to the General Assembly to change the Summer Burn Ban from 3 months to 5 months. You also need to make sure that what ever new restrictions that are set ; that the Fire Marshals will enforce because that is a problem I have had in the past.

I have Sever Asthma and Allergies. On more than one occasion I have had to go to the ER or OPD for Treatments due to exposure to smoke from burning leaves that caused an Asthma Exacerbation. When you can not breath it is an awful feeling and you usually do not fell better for a couple of days after the attack. Each time you have an Asthma attack you run the risk of death. 14 Americans die every day from Asthma a rate 3 times greater than just 20 years ago (EPA Fact Sheet(7-17-97) http://home.att.net/~Tillandsias/Particulate-Matter.htm). I would just like each member to but themselves in the place of some one with asthma or allergies that are aggravated by leave smoke. When you can not breath you became more anxious and then you can not get rid of the CO2 that is increases in your Lungs and the Alveoli can not re-expand. You can not breath and then you run the risk of complete respiratory failure. I just want every member of City Council to walk a mile in my shoes (figuratively speaking). Just think how a change in this ordinance can effect every ones life that has a problem with leave smoke and how it will help the environment. If we do not help our plant now then it will cause problems for our children in the near future. On the average , 1 ton of leaves will produce 38lbs of fine particulate matter, 26 lbs of hydrocarbons, and 112lbs of carbon monoxide (American Lung Association of Iowa Bag'em-- Don't burn'em(1999)).Thank you for your time and consideration on this ordinance. Please look at all the material I have provided and make an informed decision.

Open Air Burning Ordinance
The City Of Lynchburg
Work session
1-24-06

Resources Page:

1) Burning Leaves Pose Several Health Hazards
   By: Siegrid Stern
   11-23-96

2) Iowa DNR Air Quality

3) The Hidden Hazards of Backyard Burning
   By: EPA
   8-03

4) The Health Hazards of Burning Leaves
   By: Wisconsin DNR
   10-18-05

5) Climate Changes
   By: Environment Waikato, New Zealand
   1-13-06

6) Health and Environmental Effects of Particulate Matter
   By: EPA Fact Sheet
   7-17-97

7) Bag 'Em -- Don't Burn 'Em
   By: American Lung Association of Iowa
   1999

BURNING LEAVES POSE SEVERAL HEALTH HAZARDS

Reprint from
THE OAKLAND PRESS - Inside Surroundings - November 23, 1996
Through the Seasons by Siegrid Stern

Return To Air Pollution Page

Oh, the beauty of fall. The leaves turn vivid shades of orange, red and yellow. Unfortunately, the beauty loses its charm very fast and becomes the dilemma of what to do with all those leaves.

Open air leaf burning is one alternative. For most people, it's easier and cheaper than mulching, bagging or composting. And, for some people, the smell of burning is very pleasing. To others, especially those suffering from respiratory ailments, it can be very aggravating.

Leaf burning holds at least two perils. One is the danger of the fire spreading out of control and becoming a hazard. Two, is the physically debilitating fumes given off by burning leaves. In addition, the burning pile can produce outdoor concentrations of smoke pollution - worse than the highest concentrations of smoke found around most highly polluted industrial locations.

Leaf burning typically occurs when the outdoor temperature is cold and is often conducted in densely populated areas. It generates uncontrolled pollutants at ground level under meteorological conditions that often are not favorable for good dispersion - again resulting in significant localized impacts.

Residential open burning generates:

- **CARBON MONOXIDE**
  It reduces the delivery of oxygen to the body's organs and tissues. This may cause serious repercussions for people who suffer from cardiovascular disease.

- **NITROGEN OXIDE**
  This pollutant may cause increased respiratory illness in children. For asthmatics it can cause breathing difficulty. It can also irritate the lungs and lower resistance to respiratory infection. It is also a major pollutant that causes smog and acid rain.

- **SULFUR DIOXIDE**
  This causes the acidification of lakes and streams, causes corrosion and visibility impairment and can produce foliar damage to trees and crops.

High concentrations affect breathing and cause respiratory problems, alterations in the lung's defenses and may aggravate existing cardiovascular problems.

- **ORGANIC MATTER**
  Among these hydrocarbons are PAH and PHN. Both are naturally formed in tree leaves and have benzene related compounds in them These are released during burning. Among the PHNs is benzo(a)pyrene, a known carcinogen.

According to Dr. Bertram W. Carnow, M.D., of the University of Illinois, it is found in oak leaves in the same concentrations which exist in tobacco leaves. Studies at the university suggest the presence of benzo (a) Pyrene relates directly to the incidence of lung cancer. As the leaves are dying in the fall and the chlorophyll containing parts of the plant become yellow, the amount of PHN increases three to five times.
Dr. Carnow states: "In addition to the particulate, carbon monoxide and sulfur dioxide, a large amount of polycyclic matter is produced as a result of leaf burning. Also, there are many other compounds and materials released which have not been defined quantitatively including Aldehydes, Ketones, and other irritating organic compounds.
Further, while documentation is not complete, active compounds (free radicals), some thought to be highly carcinogenic, are also produced, again because the combustion process is incomplete."
Health effects are the damage to biological tissue and cells. Hydrocarbons relate to the incidence of lung cancer.

Leaf burning also increases air pollution, reduces visibility and damages property. Dr. Carnow and many others recommend composting leaves as an alternative to burning. The practice can save money, create fertilizer and reduce pollution.
In about as much time as it takes to burn or bag yard debris for disposal, you can prepare the same materials for composting. Composting and mulching tree leaves eliminates noxious air pollution caused by burning.

Siegrid Stern is a Michigan State University Extension-trained and-certified master gardener. The opinions and gardening advice offered in this column are those of Stern and not necessarily those of the M.S.U. Extension.

Return To Top

IowaDNR Air Quality

The Iowa Department of Natural Resources

Leaf Smoke is Unhealthy

Smoke from burning leaves, grass, brus plants contain high concentrations of pc such as carbon monoxide, particulate m toxic chemicals, and reactive gasses tha contribute to smog formation.

The smoke can be an immediate health some people. Pollution levels adjacent t can exceed human health standards.

What's in Leaf Smoke?

Carbon monoxide binds with hemoglobi bloodstream to reduce oxygen flow. Car monoxide can be dangerous for young c smokers, the elderly, and people with c or lung disease.

Particulate matter refers to microscopic particles. Too small to be seen individua unaided eye, dense concentrations are ' smoke. These particles are less than 2.! size -- roughly the thickness of a humai cell. They can become embedded in lun are known to contribute to premature d persons with heart conditions and trigge reactions for some people.

Hazardous chemicals; Benz(a)pyrene is cause cancer in animals and is believed factor in lung cancer caused by smoking present in leaf smoke.

Please learn not to burn. Composting, n bagging are cleaner options. For disposa assistance and resources, check out the website.

BACKYARD BURNING IS A HEALTH HAZARD

Backyard burning is a more serious threat to public health and the environment than previously believed and has been banned by many state and local governments. Burning household waste produces many toxic chemicals and is one of the largest known sources of dioxins in the nation.

DIOXINS

What are dioxins?

Dioxins are highly toxic, long-lasting organic compounds. They are dangerous even at extremely low levels and have been linked to several health problems, including cancer and developmental and reproductive disorders.

How are dioxins formed?

Dioxins are formed when products containing carbon and chlorine are burned. Even very small amounts of chlorine can produce dioxins. Because burn barrels do not have the same strict controls as municipal incinerators, barrel burning releases significant amounts of dioxins. Trying to prevent dioxins from forming by separating out items high in chlorine content is not effective, since low levels of chlorine are present in most household trash.

How are we exposed to dioxins?

Dioxins accumulate in the food chain. Airborne dioxins can settle onto feed crops, which are then eaten by domestic meat and dairy animals. Dioxins also can settle on water or enter waterways through soil erosion. These dioxins accumulate in the fats of animals, and then in humans when we consume meat, fish, and dairy products.

OTHER AIR POLLUTANTS

Smoke from burn barrels contains hazardous pollutants such as particulate matter, sulfur dioxide, lead, mercury, and hexachlorobenzene. These pollutants can have immediate and long-term health effects such as:

- Asthma, emphysema, or other respiratory illnesses.
- Nervous system, kidney, or liver damage.
- Reproductive or developmental disorders.

Not only are the people who burn trash exposed to these pollutants, but so are their families and neighbors. Children, the elderly, and those with pre-existing respiratory conditions can be especially vulnerable.

Ash

The ash residue from backyard burning can contain toxic pollutants, such as mercury, lead, chromium, and arsenic, which can contaminate vegetables if scattered in gardens. Children can accidentally swallow toxic materials from dirt on their hands while playing near discarded ash.

DIOXIN IN THE FOOD CHAIN

WHAT YOU CAN DO

- **Reduce.** You can reduce the amount of waste you generate by using durable, long-lasting goods and avoiding disposable items; buying products in bulk; and looking for products with less packaging.
- **Reuse.** Reusing items is another way to reduce the amount of waste you generate. Repair, sell, or donate used or unwanted items or organize a neighborhood swap event. One person's trash is another person's treasure!
- **Compost.** Composting is a great way to dispose of yard trimmings and food scraps, while creating a natural, free fertilizer. Many communities offer weekend classes on how to compost, and some even provide composting bins at a reduced cost or show you how to build your own.
- **Recycle.** Contact your local government to find out about curbside pick-up of recyclable materials or drop-off locations.
- **Properly Dispose of Waste.** Don't litter or dump illegally. Use a waste collection service or take your waste to a transfer station, convenience center, or local landfill. Check with your local officials to learn about collection service and drop-off sites in your community.

Air Management

Air Quality & Health
Air Toxics - NR 445 & 438 Revisions

Factsheets & Background Info

In The News
Latest News
Air News Archive

Open Burning

SIPs
February 2000 Submittal
December 2000 Submittal
1-Hour Ozone Redesignation, October 2002
Source-Specific SIPs

The Health Hazards of Burning Leaves

Now that the state recycling law prohibits sending yard waste to landfills, Wisconsin residents need to know how they can manage yard waste, including leaves and brush.

Open burning **IS NOT** an environmentally sound way to dispose of leaves and plant clippings at your home. State law currently allows people to burn *small* amounts of dry leaves and brush on their own property so long as leaf burning is not prohibited by local ordinances. However, *you should try to avoid burning leaves whenever possible.*

The smoke generated by a large number of simultaneous leaf fires can cause significant health problems. Leaf smoke can irritate the eyes, nose and throat of healthy adults. But it can be much more harmful to small children, the elderly, and people with asthma or other lung or heart diseases. This is because the visible smoke from leaf fires is made up almost entirely of tiny particles that can reach deep into lung tissue and cause symptoms such as coughing, wheezing, chest pain and shortness of breath--symptoms that might not occur until several days after exposure to large amounts of leaf smoke.

Besides being an irritant, leaf smoke contains many hazardous chemicals, including carbon monoxide and benzo(a)pyrene. Carbon monoxide binds with hemoglobin in the bloodstream and thus reduces the amount of oxygen in the blood and lungs. So carbon monoxide can be very dangerous for young children with immature lungs, smokers, the elderly, and people with chronic heart or lung diseases.

Benzo(a)pyrene is known to cause cancer in animals and is believed to be a major factor in lung cancer caused by cigarette smoke. It is found in cigarette smoke and coal tar as well as leaf smoke.

According to U.S. Environmental Protection Agency studies, sometimes concentrations of air pollutants resulting from leaf burning can be so high that the air does not meet federal health standards. In fact, in some areas burning of leaves and brush sometimes causes much higher levels of air pollution than all other forms of air pollution combined (such as factories, vehicles, and lawn and garden equipment).

Leaf burning can also reduce visibility, create safety hazards, cause a nuisance, soil buildings and other property, and create additional demands on local police and fire protection.

Climate Change

On this page:

Climate change may affect weather patterns and sea level rise in our Region

Normal climate changes are being affected by a gradual increase in the levels of greenhouse gases around the earth's atmosphere. This could see a rise in sea levels and changes in climate patterns, increasing the number of storms, rain, coastal flooding and erosion in the region.

Greenhouse gases naturally form a 'blanket' around our atmosphere, warming the Earth by trapping some of the heat usually radiated back into space. If it becomes too thick, too much heat becomes trapped. This creates the so-called 'Greenhouse Effect' which may lead to global warming.

These 'greenhouse gases' have been accumulating over the last 200 years, due to increased growth in human and industrial activities. The temperature of the Earth is increasing ('global warming'), affecting weather patterns world wide. Extreme changes in weather increases the risk of flooding and erosion.

Our climate

The Waikato region tends to have warm, humid summers and mild winters, with prevailing west and south-west winds from the Tasman Sea. While no part of the region is more than 80 km from the sea, extreme hot and cold temperatures can occur in some sheltered and elevated areas inland. Our average rainfall is 1,250 mm, however rain is heavier in Coromandel Peninsula, Waitomo/Kawhia and the alpine area of Tongariro National Park. Rainfall is less in the lower Waikato lowlands, Hauraki Plains, Taupo behind the Hauhungaroa Range and Reporoa Valley behind the Paeroa Range.

Find out more about the Waikato Region's climate.

Greenhouse gases

Industry, agriculture, households and transport all produce greenhouse gases, including:

- carbon dioxide (CO_2)
- methane (CH_4)
- nitrous oxide (N_2O)
- chloroflurocarbons (CFCs).

New Zealand is unique in that over half (55 percent) of all greenhouse gases produced in this country are non-carbon dioxide (non-CO_2). Forty percent of greenhouse gases produced in 1998 were methane and nitrous oxide emissions from cattle, sheep and other domestic livestock. These are more likely to have a greater effect than carbon dioxide on climate change.

Greenhouse gases are also produced by:

- agricultural soils
- petrol and diesel motor vehicles
- power stations and other industries that burn fossil fuels
- some industrial processes
- domestic heating appliances burning fossil fuels
- peatland oxidation.

Other sources include landfills, wastewater treatment facilities, land use changes (for example to grazed pasture), fertiliser use and peatland drainage. Carbon dioxide is also released from the carbon stores in trees when forests are destroyed. This means we lose forests as valuable carbon 'sinks', which help to soak up greenhouse gases.

Find out more about the sources of greenhouse gases and how Air Quality affects climate change.

Effects in our region

These include:

- a change in weather patterns
- an increase in sea level rise
- an increase in the number of landslides.

Increase in the amount and frequency of rainfall could cause more river flooding in some areas of the Waikato region, while decreases may cause drought. Land use, such as cropping and forestry may need to change to suit new weather patterns, affecting runoff, hillside and valley drainage as well as increasing fire risks due to vegetation changes. The location of some industries, agriculture, horticulture and tourism may also need to change.

Changing weather patterns may also threaten biodiversity, affecting our ecosystems. Species that are already under threat or at the limit of their climatic range may not be able to survive. New diseases and pests may take hold. Tropical pests and tropical diseases like malaria may become established in areas where they currently do not exist.

Predicted sea level rise could push the sea inland by almost 90 metres (nearly the length of a rugby field), affecting low-lying areas and estuaries. This will influence where people live, work and play and put even more pressure on our coastal environment.

Landslides may be triggered by heavy rain, as much of the soil through the Waikato region is volcanic and prone to erosion. People relocating inland to avoid coastal hazards such as flooding and erosion may face an increased risk of large scale rock and/or soil slips in marginal areas, due to the effects of changes in rainfall, drainage patterns and land use on hill slopes.

Find out more about River Flooding, Landslides and Coastal Hazards such as flooding and erosion.

These events also threaten 'lifeline' services such as water, power, telecommunication and transportation networks. Find out more about managing lifelines to deal with unexpected emergency or natural hazard events.

Use our Quiz to test your knowledge on climate change and global warming.

What we are doing

- Environment Waikato's Regional Policy Statement acknowledges the need to manage natural hazards, such as flooding, landslides and large-scale rock/soil mass movements, severe weather events, drought and fire. Climate change will increase the risk from these hazards and make their management even more important. The Statement also supports Government policy in the management of greenhouse gases.
- We already have strategies to lessen the effect of climate change, including our:
    - Waste Management Strategy.
    - Sustainable Agricultural Project.
    - Biodiversity Strategy.
    - Transport Strategy.
- Environment Waikato has site-specific risk mitigation plans, in-house working parties and community Care groups. These include our Coastal Erosion Project and Flood Hazard Mapping Project.
- We are involved in Civil Defence planning and management in our region. This includes training our Civil Defence response staff and liaising with other agencies in a Civil Defence emergency.

What you can do

You can help reduce greenhouse gas emissions by not using aerosols that contain greenhouse gases. Be energy efficient by:

- insulating your home and hot water cylinders
- using renewable energy sources rather than fossil fuels (for example solar heating)
- ensuring your home heater is fuel efficient.

Think about how you and your family and friends get around:

- Keep your motor vehicle well tuned and well looked after.
- Try cycling, walking or take the bus.
- Form a car pool.

Reduce carbon dioxide in our air:

- Don't burn leaves in your garden – make compost.
- Look after the trees in your area.
- Whenever you can, plant a tree and look after it well.

Find out how to be energy efficient around your home and business on the Energy

EPA Fact Sheet

United States Environmental Protection Agency
Office of Air & Radiation
Office of Air Quality Planning & Standards

FACT SHEET

July 17, 1997

HEALTH AND ENVIRONMENTAL EFFECTS OF PARTICULATE MATTER

Why are We Concerned About Particulate Matter?

- **Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 micrometers) come from a variety of sources including windblown dust and grinding operations. Fine particles (less than 2.5 micrometers) often come from fuel combustion, power plants, and diesel buses and trucks.**
- **These fine particles are so small that several thousand of them could fit on the period at the end of this sentence.**
- **They are of health concern because they easily reach the deepest recesses of the lungs.**
- **Batteries of scientific studies have linked particulate matter, especially fine particles (alone or in combination with other air pollutants), with a series of significant health problems, including:**
    - **Premature death;**
    - **Respiratory related hospital admissions and emergency room visits;**
    - **Aggravated asthma;**
    - **Acute respiratory symptoms, including aggravated coughing and difficult or painful breathing;**
    - **Chronic bronchitis;**
    - **Decreased lung function that can be experienced as shortness of breath; and**
    - **Work and school absences.**

Who is Most at Risk from Exposure to Fine Particles?

- **The Elderly:**
  - **Studies estimate that tens of thousands of elderly people die prematurely each year from exposure to ambient levels of fine particles.**
  - **Studies also indicate that exposure to fine particles is associated with thousands of hospital admissions each year. Many of these hospital admissions are elderly people suffering from lung or heart disease.**
- **Individuals with Preexisting Heart or Lung Disease:**
  - **Breathing fine particles can also adversely affect individuals with heart disease, emphysema, and chronic bronchitis by causing additional medical treatment. Inhaling fine particulate matter has been attributed to increased hospital admissions, emergency room visits and premature death among sensitive populations.**
- **Children:**
  - **The average adult breathes 13,000 liters of air per day; children breathe 50 percent more air per pound of body weight than adults.**
  - **Because children's respiratory systems are still developing, they are more susceptible to environmental threats than healthy adults.**
  - **Exposure to fine particles is associated with increased frequency of childhood illnesses, which are of concern both in the short run, and for the future development of healthy lungs in the affected children.**
  - **Fine particles are also associated with increased respiratory symptoms and reduced lung function in children, including symptoms such as aggravated coughing and difficulty or pain in breathing. These can result in school absences and limitations in normal childhood activities.**
- **Asthmatics and Asthmatic Children:**
  - **More and more people are being diagnosed with asthma every year. Fourteen Americans die every day from asthma, a rate three times greater than just 20 years ago. Children make up 25 percent of the population, but comprise 40 percent of all asthma cases.**
  - **Breathing fine particles, alone or in combination with other pollutants, can aggravate asthma, causing greater use of medication and resulting in more medical treatment and hospital visits.**

How do Particulate Matter and Fine Particles Effect the Environment?

- **The same fine particles linked to serious health effects are also a major cause of visibility impairment in many parts of the U.S.**
- **In many parts of the U.S. the visual range has been reduced 70% from natural conditions. In the east, the current range is only 14-24 miles vs. a natural visibility of 90 miles. In the west, the current range is 33-90 miles vs. a natural visibility of 140 miles.**
- **Fine particles can remain suspended in the air and travel long distances. For example, a puff of exhaust from a diesel truck in Los Angeles can end up over the Grand Canyon, where one-third of the haze comes from Southern California. Emissions from a Los Angeles oil refinery can form particles that in a few days will effect visibility in the Rocky Mountain National Park. Twenty percent of the problem on dirtiest days in that Park is attributed to Los Angeles-generated smog.**
- **Airborne particles can also cause soiling and damage to materials.**

What Improvements Would Result from EPA's New Standards?

- **EPA's new standards will provide increased health protection from the following effects:**
  - **About 15,000 lives each year will be saved, especially among the elderly and those with existing heart and lung diseases.**
  - **Reduced risk of hospital admissions by thousands each year, and fewer emergency room visits, especially in the elderly and those with existing heart and lung diseases.**
  - **Reduced risk of symptoms associated with chronic bronchitis, tens of thousands fewer cases each year.**
  - **Reduced risk of respiratory symptoms in children, hundreds of thousands fewer incidences each year of symptoms such as aggravated coughing and difficult or painful breathing.**
  - **Reduced risk of aggravation of asthma, hundreds of thousands fewer incidences each year, in children and adults with asthma.**
  - **Reduced risks of susceptibility to childhood illnesses.**
- **Improved visibility over broad regions in the east and urban areas:**

- **The Clean Air Act placed special emphasis on preserving visibility in certain national parks and wilderness areas. In response, EPA is developing a "regional haze" program intended to ensure all parts of the country make continued progress toward the national visibility goal of "no manmade impairment."**

- **New standards that EPA has promulgated, together with the "regional haze" program under development, will protect against visibility impairment, soiling and material damage effects, and will further reduce acid rain.**

Can you tell me if my city/county meets the new standards?

Governors will not designate areas relative to the new standards for ozone until 2000 and particulate matter until 2002. The designations will be based on the three most current years of air quality monitoring data at the time they are made. Today, EPA can only use historical data for ozone from 1993 - 1995 to estimate the likelihood that an area will not meet these new standards. No nationwide data exists for $PM_{2.5}$, which is a newly targeted pollutant. Between now and the time designations are made, we believe air quality will continue to improve because of local efforts, as well as national pollution reductions from, for example, cleaner cars. Therefore, an area's air quality when designations are made in the future will most likely be different than today's estimate based upon historical data.

AMERICAN LUNG ASSOCIATION®
of Iowa

Bag 'Em--
Don't Burn 'Em

Leaf Burning: Effects & Alternatives

When You Can't Breathe, Nothing Else Matters®

Effects of Leaf Burning

- The continued allowance of open burning leaves in Iowa communities poses many threats to Iowans: economically, medically and emotionally. Effects of leaf burning include:
- Increased hospitalizations for respiratory illnesses.
- Increased costs for trips to the doctor and medicatios for sensitive people.
- Increased mortality.
- Decreased visibility from intense leaf burning which increases the potential for auto accidents and death.
- Costs related to out-of-control fires such as personal injuries, property damage and cost for the fire department.
- Personal injury and increased potential for injury to children.
- Airborne particles can aggravate the symptoms of those with respiratory problems.
- Those with chronic problems such as allergies and asthma are affected.
- 85% of the particles from leaf smoke are inhaled deep in the lungs which can cause adverse physical or chemical effects.
- Serious forest and grass fires may result from our-of-control leaf fires.
- The smoke from burning leaves affects more than just the yard or neighborhood where the burning occurs.
- Those experiencing respiratory problems have decreased mobility and cannot enjoy the fall season.
- Damage to streets can occur from the piles of burning leaves.
- Taking account the results of burning leaves such as illness, decreased strength and a shortened life span, it must be realized that in the long run these things cannot be measured in a dollar amount.

The Human Respiratory System

The tracheobronchial region of the human lungs is made up of both large and small airways. If particles are deposited in the lungs over a period of time in sufficient quantity, it can lead to disease.

The largest particles that are inhaled will be removed by the sinus passages.

The medium particles are usually carried out by the cilia (hairlike projections whose constant motion carries foreign material out of the lungs) and mucous in that portion of the lungs.

The smaller particles are able to go directly into the bloodstream.

Any excess material will build up and interfere with the passage of air through the lungs and will eventually lead to disease.

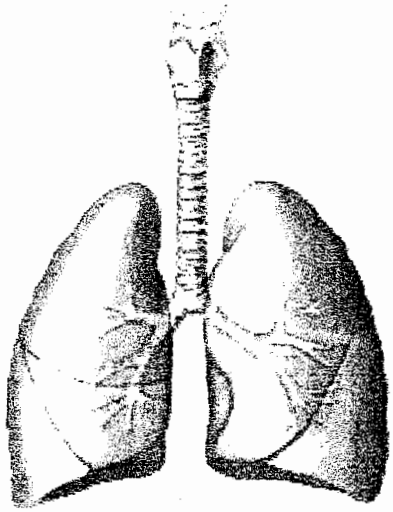
Particles less than 1 micron in size can reach the deep regions of the lungs.

Human Respiratory System
Filtering:

The nose - 7 microns and above

Secondary Bronchi - 2.0 to 3.3 microns

Alveoli - Back up filter, submicron



Trachea & Primary Bronchi - 3.3 to 7.0 microns

Terminal Bronchi - 1.1 to 2.0 microns

85% of the particles from burning leaves travel deeply into the lungs, placing an unnecessary burden on the respiratory system.

Leaf Smoke in The Lungs

Leaf burning gives off major pollutants in the form of particulates, hydrocarbons and carbon monoxide. In addition to the chemical pollutants released, mold spores are distributed in the plume of the fire. These spores may affect people with allergies.

Particulates - Make up the majority of the leaf smoke. Particulates that are small in size reach the pulmonary region, the deepest part of the lungs. It is in the pulmonary region where the alveoli facilitates gas exchange and oxygen is supplied to the bloodstream. Particles that are small enough may be absorbed directly into the bloodstream. These particulates can be toxic. The toxic chemicals that adhere to the particles can cause the greatest health threat.

High Risk Groups For Particulates

- Those with cardiovascular problems
- Asthmatics
- Children 0-6 years
- Some people with bronchitis and emphysema

Hydrocarbons - The unburned chemicals in combustion. Leaf smoke contains seven hydrocarbons known to cause cancer. Eighty-five percent (85%) of the hydrocarbons given off by leaf smoke are small enough to reach the deepest part of the lungs and eventually are absorbed into the bloodstream.

High Risk Groups For Hydrocarbons

- Those with cardiopulmonary problems
- Those with cardiovascular problems
- Tobacco smokers

Carbon Monoxide - Combines with hemoglobin in the blood and reduces the blood's oxygen carrying capacity. Relatively low levels of carbon monoxide can cause dizziness, headaches and fatigue. Most of the carbon monoxide inhaled will be absorbed into the bloodstream.

High Risk Groups For Carbon Monoxide

- Those with cerebrovascular problems
- Those with cardiovascular disease
- Those with anemia
- Those with chronic lung diseases
- Unborn fetuses
- Newborn infants and children
- Tobacco smokers
- Post coronary joggers
- The elderly

On average, 1 ton of leaves will produce 38 pounds of fine particulate matter, 26 pounds of hydrocarbons, and 112 pounds of carbon monoxide.

Tips for Banning Leaf Burning

- Educate yourself first. Get all the information you can on leaf burning. Find out such things as cost effectiveness, health effects and alternative methods for disposing of the leaves within your community.
- Generate community support for banning leaf burning before presenting the issue to the city council. Find council members or supervisors who will endorse your efforts. Call council members individually to see if they would be in favor of a ban.
- Involve community or activist groups for support such as women's groups, local organizations or a Sierra Club that are in favor of a ban and will support your efforts.
- Invite people in the community to sign a petition supporting a ban on leaf burning.
- Research alternative methods such as composting or mulching.
- Ask the health department or the American Lung Association to speak about the harmful effects of leaf burning. This will add credibility to the issue in your community.
- Obtain accurate information about hospital costs, insurance costs and fire damage costs related to leaf burning.
- Talk to the local fire chief and find out about the number of calls for out-of-control fires due to the burning of leaves.
- Develop a public information campaign to encourage alternative disposal methods for the leaves.
- Find out if there is funding available to monitor the local air quality during the leaf burning season.
- Every community will be different in regard to how bans are made effective.
- Find out how to get on the agenda at the next city council meeting.
- If a complete ban will not be put into effect, would the city council consider a compromise such as a partial ban?

Remember: There is power in numbers!!
Get as much support behind you as possible!!

Alternatives to Burning Leaves

- **Mulching**
  - Adds vital nutrients to the soil
  - Prevents wind and water erosion

Shred leaves while mowing and leave on your lawn. Most lawn mowers now come with a detachable mulching blade, or you can purchase one for you mower at a minimal cost.

- **Use leaf mulch around shrubs and garden plants**
  - Discourages weeds
  - Reduces moisture loss
  - Helps control temperature
  - Provides a neat, finished appearance

- **Home composting of leaves for use as a fertilizer and soil conditioner**
  - A properly managed compost pile emits no odors
  - Adds vital organic matter to build up soil and retain more moisture

How to make a leaf compost pile

1. Select an out-of-the-way area that is accessible to water.
2. Make a 2-foot deep pit or enclose the compost pile in fencing or other framework.
3. Place leaves in loose layers, alternating with soil and other vegetative waste.
4. Leaves will decompose faster if a high nitrogen fertilizer is added to each layer.
5. Keep moist
6. Cover with straw, tarp or plastic to retain heat.
7. Keep well aerated by frequent turning of the pile after a few weeks to ensure all parts are thoroughly mixed.

Advantages to Recycling Your Leaves

- Save money in costs of peat and fertilizer
- Reduce the city's waste collection load at less cost to the tax payer.
- Reduce the danger of leaf fires.
- Reduces the city's air pollution problem as caused by leaf burning.
- Eliminate the waste of a material that could be of benefit to you.

- **Bag your leaves for collection**

Open Air Burning Ordinance
The City Of Lynchburg
Work session
1-24-06

Examples of other County/City in Virginia with Burn Ban ordinances more restrictive than Lynchburg .

1) Prince William
2) Rockingham
3) Henrico

Citizens

Search

Board of Supervisors
Clerk of Court
Commissioner of Revenue
Commonwealth Attorney
Community Development
County Administrator
Finance
Fire & Rescue
- Open Burning Requirements
- Fire Safety Guidelines for Woodland Homes
- Yielding the Right of Way to Emergency Vehicles
- Protect your Home from Future Flood Damage
- Matches and Lighters....Tools, Not Toys!
- Volunteer Application
- Preparing for / Recovering from Disasters
- Free Smoke Detector Program

Human Resources
Info Systems
Other Government Sites
Public Works
Recreation & Facilities
Sheriff
Treasurer
Voter Registrar
FAQs

Government > Fire & Rescue > Open Burning Requirements

What is Open Burning?

The code defines openburning as the burning of any materials wherein products of combustion are directly into the ambient air without passing through a stack or chimney from an enclosed chamber.

How to Obtain a Burn Permit

A burn permit must be obtained before burning. There is no fee charged for a burn permit and you required to come to the office to obtain a burn permit. You can obtain a burn permit by calling the R County Department of Fire & Rescue Office at (540) 564-3175, Monday through Friday, between 8:(5:00 p.m. You may apply for a permit up to one week prior to when you plan to burn, and you shoul permit at least one day prior to when you plan to burn. Burn permits cannot be obtained after norm hours.

Open Burning Permit Requirements

This information is provided to assist you in understanding the provisions of the Rockingham Count Prevention Code relating to open burning. If you are located within an incorporated town you shoul see if there are more restrictive town ordinances.

A burn permit is required to burn brush piles, leaves, grass clippings, tree trimmings, garden waste, similar types of landscape waste, bon fires, and for recognized agricultural or horticultural managem purposes to maintain or increase the quantity or quality of agricultural or horticultural production.

A burn permit is not required to burn highway safety flares, smudge pots or similar occupational nee recreation fires or outdoor fires utilized to cook food for human consumption.

Any material to be burnt must be at least 50 feet from any structure, including power and utility lines shall be made to prevent the fire from spreading to within 50 feet of any structure.

Any open burning must be constantly attended until the fire is completely extinguished. This means must be at the fire the entire time it is burning. A fire left unattended even for a moment is likely to e

You must have on-site and readily available a means to estinguish the fire. The methods of extingu include a fire exinguisher, garden hose, buckets of water, heavy equipment, etc.

When You May Burn

After obtaining your burn permit you may burn at anytime of the day, except during the period of Fe through april 30 when the Virginia Deparmtent of Forestry's 4:00 p.m. restriction is in effect.

Virginia Department of Forestry's Burn Law

No burning until after 4:00 p.m. February 15 through April 30 of each year, if the fire is in or within 3(

woodland, brushland, or field containing dry grass or other inflammable material.

The fire shall not be left unattended if within 150 feet of woodland or dry fuel.

No new fires set of fuel added after midnight.

Law applies to campfires, warming fires, brush piles, stumps, fields, of broomstraw and brush, or an capable of spreading fire.

The law provides for a penalty of up to $500, plus payment of court costs and fire suppression costs escapes.

Prohibited Burning

The Rockingham County Fire Prevention Code Prohibits the open burning of household trash, waste constrution debris, rubber tires, asphalt shingles, plastics, rubber, vinyl, or similar items. The Fire M Office may ban open burning that is offensive or objectionalble due to smoke, odor, emissions, or wl atmospheric conditions or local circumstances make such fires hazardous. The Fire Marshal's Offic the exinguishment of any open burning that creates or adds to a hazardous or objectionable situatio revoke active burn permits as circumstances dictate. Furthermore, the Virginia Department of Fores burning during high fire danger periods.

Violations of any provisions of the Rockingham County Fire Prevention Code is a Class 1 misdemea punishable by confinement in jail for not more than twelve months and a fine of not more than $2,50 both. Furthermore, any landowner or responsible party who sets a fire or causes a fire to be set ma liable by the Virginia Department of Forestry for extinguishment cost if the fire escapes. This liability when all provisions of various codes are followed.

Fire and Rescue Topics

- Most Popular
- Most Recent
- About Us
- Blasting
- Explosives
- Fire Code Compliance and Permits
- Fireworks
- Forms
- Apparatus
- General Information
- News Releases
- Permits
- Programs
- Public Information
- Publications
- Recruiting Information
- Volunteer Fire and Rescue

Burning Regulations

Open burning in Prince William County is governed by the regulations set forth by the V Statewide Fire Prevention Code, the Code of Prince William County, and the Commonv Virginia State Air Pollution Control Board.

1. Burning is prohibited except by permit. Burning that is permissible by permit incl burning, use of an air curtain destructor, and bonfires. An on-site inspection will prior to burning. A permit is not required for recreational (campfires) or small occ (i.e. small fire to heat water on a construction site during winter months). **The pe refundable once the permit inspection is conducted.**
2. Virginia Air Pollution Emissions Standards prohibit burning of any type during the June, July, or August. Prince William County lies in the Northern Virginia Volatil Compounds Emissions Control Area where open burning is prohibited during the
3. Burning shall be conducted as to maintain 1,000 feet clearance from any occupi
4. All open burning shall be constantly attended until the fire is extinguished. Fire e equipment shall be available for immediate use (i.e. loader, etc).
5. Prior to the ignition and upon completion of any burning, notification to Prince Wi Public Safety Communications, 703-792-6810, must be made. The location and must be given at that time.
6. The burn site should be at the greatest distance practical from any highway.
7. The material to be burned shall consist of brush, stumps, and similar land clearir generated at the site and shall not include demolition material or any materials b other areas
8. Rubber tires, asphaltic materials, crankcase oil, impregnated wood, rubber or pe materials shall not be burned. Similarly, toxic or hazardous materials or the cont materials shall not be burned
9. If a Special Incineration Device (SID) such as an air curtain destructor is used, it erected and operated in accordance with the manufacturer's recommendations. the material to be burned extend above the top of the pit. The pit dimensions sh than the manifold of the SID, no wider than 12 feet, and at least 8 feet deep. A S on all pit sites.
10. A new permit must be obtained for each additional pit on any site.
11. Temporary fencing must be installed around any pit when not in use.
12. During the period beginning February 15 through April 30, the State Forest Laws effect. There shall be no agricultural burning except during the hours of 4 p.m. a
13. The Fire Marshal's Office can prohibit open burning which is offensive or objecti smoke or odor emissions when atmospheric conditions or local circumstances r hazardous. The Fire Marshal's Office shall order the extinguishment, by the per fire department, of any open burning which creates or adds to a hazardous or ob situation. During extreme dry weather burning may be prohibited.
14. Any permit can be canceled if any of the above conditions are violated.

Applicant must have the completed hazardous use permit application and fee submitte Marshal's Office prior to 12 p.m. in order to have the permit delivered the next day. Shc any questions concerning open burning, contact the Fire Marshal's Office at 703-792-6 information.

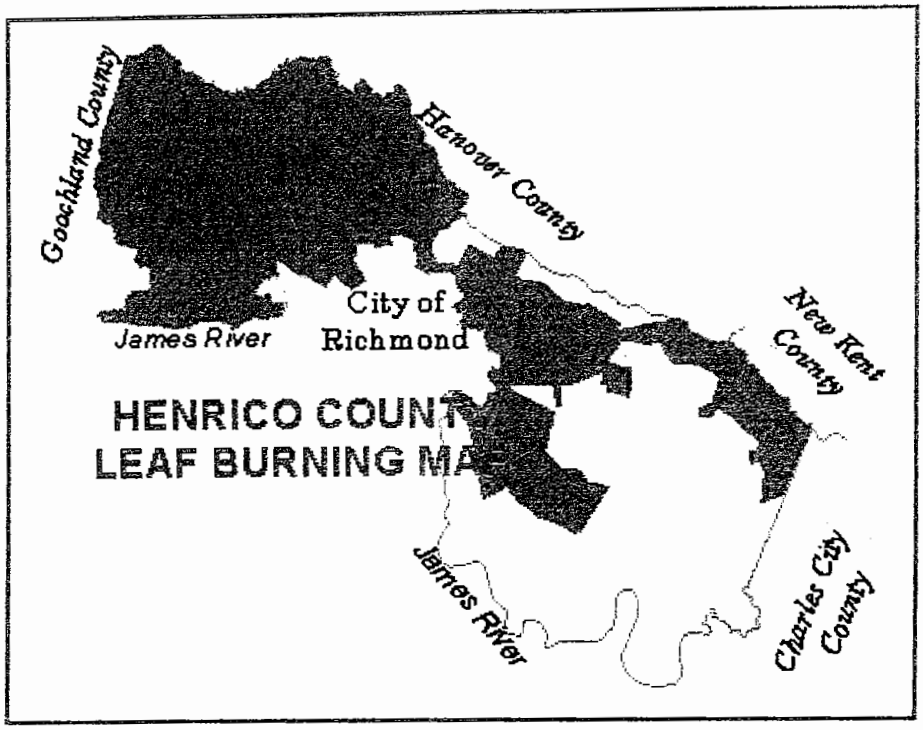
Hazardous Use Permit Application

Henrico County, Virginia
Division of Fire

Henrico County Leaf Burning Map

NOTICE!

Burning is prohibited in the green areas. For more detail, click the white space inside the Henrico County Boundary on the map below (eastern Henrico County). Then use the back button on your browser to return to this page.



LEAF BURNING

It is illegal to burn leaves if you live in an area that is shaded on the map. Residents in unshaded areas (white areas) may burn leaves.

Burning is permited in the white areas from October 15 until February 14 from 8:00 am to 8:00 pm.

From February 15 to April 30, leaf burning is allowed in the white areas from 4:00 pm to 8:00 pm.

There is no burning allowed without a permit between May 1, and October 14, of the year. All open burning within Henrico County during this time will require a permit issued by the Fire Marshal. There will be no burning permits for June, July and August.

Cooking fires could be the exception to the rule.

In accordance with Henrico County Code 11-17, leaf burning is prohibited in areas serviced by county leaf collection.